We claim:

1. A method of effecting peak reduction in a DMT signal, comprising the steps of creating a predetermined signature waveform, and subtracting said predetermined signature waveform from said DMT signal in the region of a signal peak whenever the DMT signal is above a predetermined maximum level.

2. A method as claimed in claim 1, wherein said DMT signal is first passed through an IFFT unit which produces a time domain signal $x(k_1)$.

3. A method as claimed in claim 2, wherein said IFFT unit generates a first output *M* representing a maximal value of said signal $x(k_1)$ and a second output *I* representing the address location of the maximal value *I* in said signal $x(k_1)$.

4. A method as claimed in claim 3, wherein said predetermined signature waveform is subtracted from said DMT signal when the absolute value |M| is above a predetermined value.

5. A method as claimed in claim 4, wherein said signature waveform has fewer samples than said DMT signal, and said signature waveform is first aligned with said signal peak prior to subtraction.

6. A method as claimed in claim 5, wherein said signature waveform is first multiplied by a scaling factor to match said DMT signal.

7. A method as claimed in claim 6, wherein said scaling factor is determined from said absolute value |M|.

8. A method as claimed in claim 7, wherein the scaling factor *C* is determined in accordance with the equation

$$C = (|M|) - 0xXXXXX) \times sgn(M)$$

where 0xXXXXX is a predetermined number.

9. A method as claimed in claim 7, wherein the result of multiplying the scaling factor with said signature waveform is first shifted to match the number of bits per sample in the result with the number of bits representing the time domain signal $x(k_1)$.

10. A method as claimed in claim 1, wherein said signature waveform is generated by passing a predetermined waveform through a waveform modifying circuit on an iterative basis until the waveform change is insignificant between samples or a maximum number of iterations is reached.

11. A method as claimed in claim 10, wherein said waveform modifying circuit comprises an IFFT unit to produce said signature waveform s(n) in the time domain, a waveform restriction unit to produce a modified time domain signature waveform signal $s_1(n)$, and FFT unit to produce a frequency domain modified waveform signal S(k) and a spectrum restriction unit to produce a band limited frequency signal $S_1(k)$ which is passed back to said IFFT unit as part of said iterative process.

12. An arrangement for effecting peak reduction in a DMT signal, comprising a first unit for creating a predetermined signature waveform, and a second unit for subtracting said predetermined signature waveform from said DMT signal in the region of a signal peak whenever the DMT signal is above a predetermined maximum level.

13. An arrangement as claimed in claim 12, wherein said second unit comprises an IFFT unit for generating a time domain signal from said DMT signal which is applied to a subtractor.

14. An arrangement as claimed in claim 13, wherein said IFFT unit has two additional outputs representing respectively the maximal value and location of said maximum value in said DMT signal.

15. An arrangement as claimed in claim 14, wherein said additional outputs a applied to respective inputs of a threshold calculation unit that generates a scaling factor for said signature waveform when said absolute value is above a predetermined value.

16. An arrangement as claimed in claim 15, wherein said first unit comprises an IFFT unit for generating a time domain signal from a predetermined input waveform, a time domain waveform restriction unit, an FFT unit for producing a modified frequency domain waveform, and a spectrum limiting unit for said modified frequency domain waveform, an output of said spectrum limiting unit being applied to an input of said IFFT unit to permit generation of said signature waveform by means of an iterative process.